Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

Vol. 4. New York, August 11, 1849. No. 47.

THE
Scientific American.
THE
BEST MECHANICAL PAPER IN THE WORLD.
CIRCULATION 12,000.
PUBLISHED WEEKLY.
At 128 Fulton Street, New York (Sun Building,) and 13 Court Street, Boston, Mass.
By Munn & Company.
The Principal Office being at New York.
Barlow & Payne, Agents, 89 Chancery Lane, London

TERMS---$2 a year---$1 in advance, and the remainder in 6 months.

Poetry.

THE MIND THAT MAKES THE MAN.

BY MYRAH S. BARNES.

A proud patrician lord one day,
His plebeian neighbor met :
And thus in the most disdainful way,
The worthy man beset ;

A clown thou art, yet still they say
There's mind within thy breast ;
That Science' giddy mountain heights
Thy roving feet have press'd ;

That Fame awards her laurel crown
To rest upon thy brow ;
That richer things than gold or laurels
Thou hast in keeping now.

Yet plainly still thy garb and mein,
Ignoble birth proclaim ;
What fancy strange is prompting thee
To carve thyself a name ?

A moment on the scornful face,
The plebeian's eyes were bent ;
A moment, and his answer came
In words that heart made eloquent :

My father was a woodman's son,
Who left unto his child
No gold nor lands, but richer far—
A birth right undefiled.

And I am proud to own my sire,
Though plebeian he may be ;
For Heaven hath placed upon his brow
The stamp of its nobility.

Not for the lands, nor yet, indeed,
For all thy wide domain,
Would I renounce the laurel crown
By hard earned labor gained.

Onward and upward, it shall be
The meteor fighting still,
My chosen path, its trusty guide
Omnipotence of will.

Strange language this, new words to him,
The child of wealth and pride ;
Whose random shafts so rudely aimed,
Their lowly mark defied.

And silently he turned away,
Though pausing first to scan
The speaker's visage, as if to read
" The mind that makes the man."

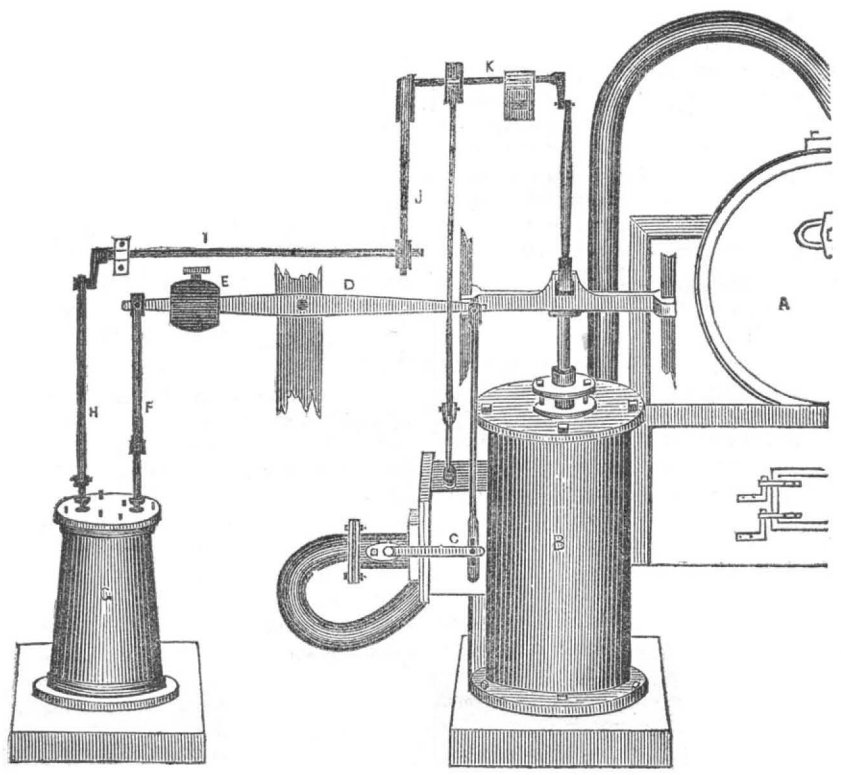
Good Deeds.

No act falls fruitless : none can tell
How vast its powers may be,
Nor what results enfolded dwell
Within it silently.

A whispered work may touch the heart,
And call it back to life ;
A look of love bid sin depart,
And still unholy strife.

Work and despair not, give thy mite,
Nor care how small it be ;
God is with all that serve the right,
The holy, true, and free !

PITCHER'S HYDRAULIC MOTION REGULATOR.---Figure 1.

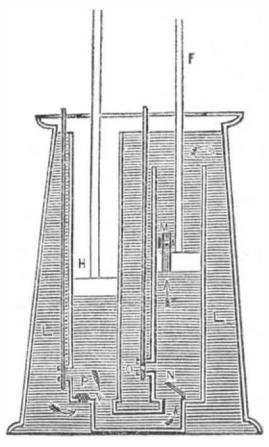


This apparatus is the invention of S. P. Pitcher, of Syracuse, N. Y. who secured a patent for it in the month of December, 1847, and a patent is now pending for improvements.

Fig. 1 is a front elevation, and fig. 2 is a vertical section showing the inside of the pump and the valve, likewise the piston that operates the steam valve. It is used as a substitute for the Fly Ball Governor, and it holds the motion of the engine to a given number of revolutions per minute, with great exactness, not requiring a continued variation of motion in the machinery to keep the steam valve more or less open, while it takes cognizance of the least variation of motion, and moves with force sufficient to overcome any friction about the steam valve. It works quick or slow as required, and does not need much care, and it is easily adjusted to give any motion to the machinery, and is not liable to get out of repair.

Description —A, is the steam boiler of an engine. B, is the steam cylinder, and C, is a rod which is attached to a balance lever D, to operate the valve in the steam pipe. E,

Fig. 2.



is a weight upon the balance lever to regulate the power or number of revolutions of the pump piston required to operate the steam valve. The section view, fig. 2, will best explain this operation. G, is a water cistern, filled with water and made perfectly water tight. In it are two cylinders both communicating freely with the water L. The one communicates at the top, the other through a valve P, at the bottom. H, is a piston. It is kept in motion continually by band J, and pulley from the shaft K, of the engine, which drives the shaft I, and works the piston rod H, working the pump. The piston rod F, is connected to the balance lever D, and the piston in it has an orifice M, which passes thro' it. It will be observed by the arrow, that the pump just forces the same water continually through the cylinders into the cistern, taking it at the valve P, forcing it into the other cylinder at the valve N, and through the orifice M. If there is more water forced into the second cylinder than can pass through the orifice M, the said piston will be lifted up, operate the weighted lever D, and close the steam valve. The orifice piston is therefore set by the weight to let the exact amount of water pass through it without disturbance, when the engine is working at a maximum, therefore any irregularities in the speed of the engine must sensibly affect the weighted lever, and consequently the steam valve, and adjust the steam to give the exact motion required to the machinery. The pump is attached to the engine to give quick short strokes to act more sensitive than by long slow ones. The inventor is ready to attach them to steam engines and warrants them to work as recommended.

We understand that Messrs. W. Lester & Co. of Syracuse, and Comington & Pardee, of Oswego, N. Y. are using Mr. Pitcher's Regulator on machines difficult to be regulated, and they are well pleased with them. They answer for all prime motors, water wheels, engines, &c. Mr. Pitcher's motto is, " No work, no pay," and this should give him, as no doubt it will, along with the evident utility of his apparatus, a very favorable reception with the public. We understand that he has gone to Providence, R. I., where he will in all likelihood meet with that success which his invention and perseverance entitle him.

The Ohio Statesman says that the convict Hamilton, who died in the Ohio Penitentiary was too young a man to be Littlejohn the Revivalist.

Robert Rand of Cincinnati, who has been vending sundry patents. and latterly a speculator in lands, having obtained a considerable sum of money by forged notes, has absconded.

RAILROAD NEWS.

Utica and Schenectady Railroad.

The excavation through the rocky cliffs at Little Falls, designed for the double track of the Utica and Schenectady Railroad, has been completed The cut is made through a mass of solid rock ; is nearly 100 feet long, the extreme depth is 35 feet, and it is 27 feet wide at the bottom. 30,000 yards of granite have been removed by blasting, continued for 17 months ; and 1,600 kegs of powder were consumed in the work.

There will now be a double track of the best quality of the heavy rail on the whole route. By this improvement, the worst and most dangerous curve on the road is avoided.

Panama Railroad.

This Company have advertised for sealed proposals for the construction of a Railroad from Gorgona on the Chagres river to the Pacific Ocean at Panama. The maps and specifications will be ready by the 15th of August, and proposals for the construction will be received until the 15th of September A small steam boat called the General Herran has been sent out in halves from Philadelphia to Chagres river, and by the last accounts her boilers were in, and her joiner work was going rapidly forward. When the section of Railroad now offered shall be completed, there will be a continuous steam communication from ocean to ocean. The remaining section, from Gorgona to Mansanilla Bay, in the Gulf of Mexico, the Company can construct at their leisure.

Travel Cheapened.

In 1837, the fare from Chicago to Troy was $74 50,

Stage fare from Chicago to Detroit, $36 75
" " Detroit to Buffalo 22 50
" " Buffalo to Troy 15 25

The present fare by steamboat and railroad between Albany and Chicago is about $17.

The citizens of Norfolk, Va., have held a poll to test the sense of the citizens as to the propriety of authorising the authorities to subscribe $200,000 to the stock of the Seaboard and Roanoke Railroad Co. which has resulted favorably—the vote for the subscription being 310, and against it 114. The matter has been for some time past, the subject of much heated controversy in the borough.

The Georgia railroad is so far completed that cars are expected to run in to Chattanooga early in October. This is the terminus of the Nashville road, which is in progress.

The British Parliament has taken particular measures to prevent further railroad swindling. Mr. Hudson is dethroned from his seat in Parliament.

Preserving Summer Fruits.

Such fruits as Strawberries, Raspberries, Blackberries, and the like may be preserved in the following manner. Put sugar over the fire at the rate of half a pound to the pound of berries, add a little water and when hot take up the fruit in a skimmer and dip it into the sugar holding it there for half a minute perhaps, then take it out and spread it on tin. Go through the whole lot in this manner.—Then boil down the sugar to a thick syrup and pour it over the fruit. Set the tins either in the sun or in a warm oven till the berries are dried through in thin gelatinous cakes. When thoroughly dry, put the cakes in a bag and hang it up out of the way. The cakes will keep as long as wanted and may be fitted for the table in a very few minutes, by the addition of a little hot water—more sugar being added if necessary. The beauty of this mode is that the flavor of the fruit is retained while there is no danger of its spoiling by fermentation.

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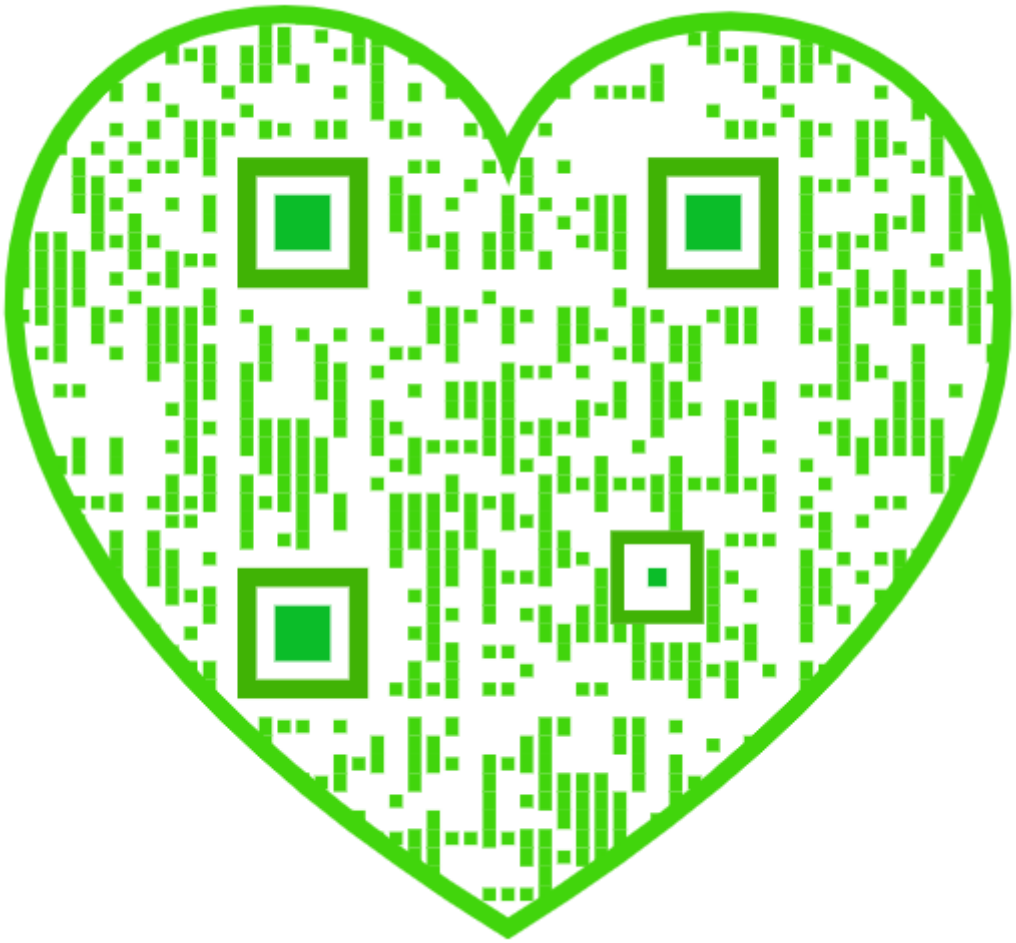

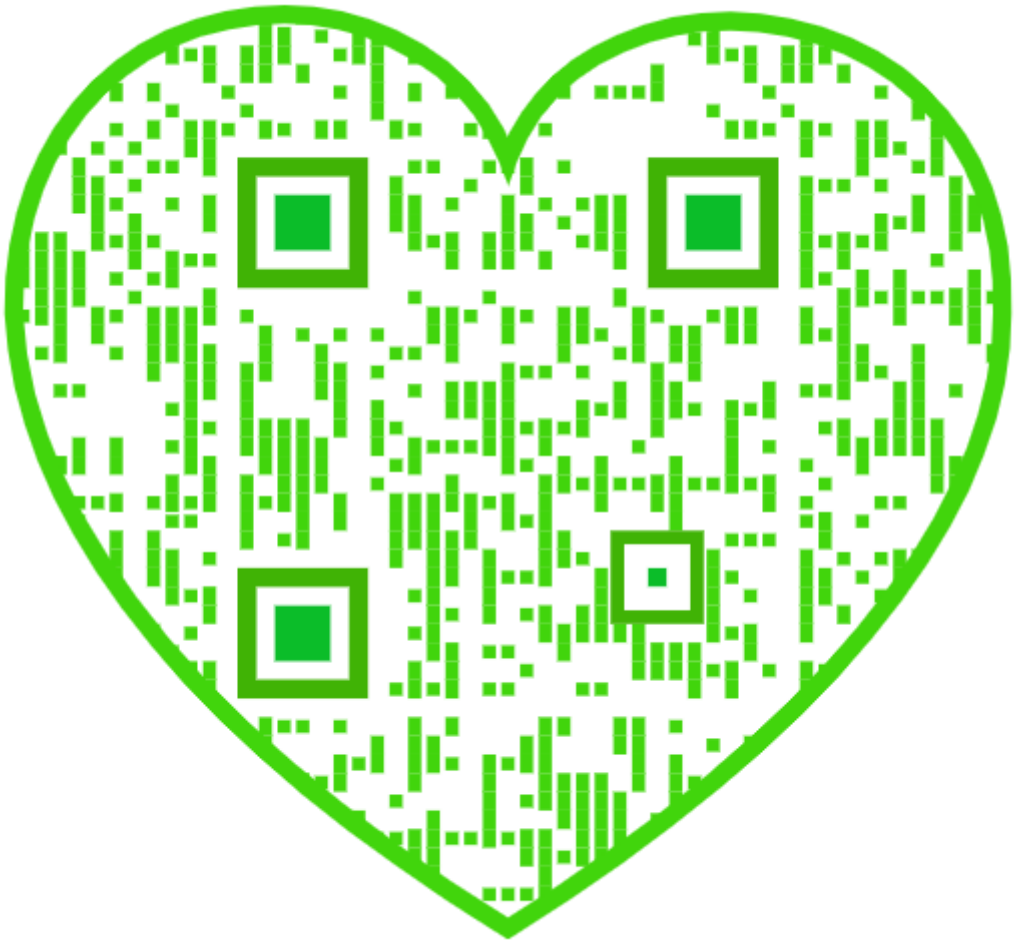

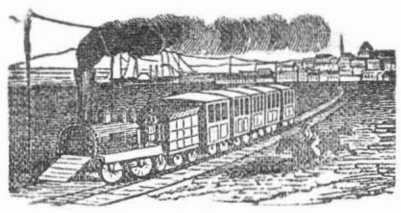

The Cholera.

This disease is sensibly abating in this city, and business is beginning to resume its healthy tone. The cases have decreased gradually for three weeks, to about one half of the number during the week of its greatest virulency. We have collected together the whole budget of receipts that have been promulgated respecting the treatment of this disease. They are of the most contradictory character. The disease is no doubt somewhat geological. Before it broke out, Dr. Jackson of Boston gave this as his opinion, stating his belief that it would not touch the granite districts of new England. We doubted the correctness of his opinions at the time, but said nothing. We have watched its course and progress since, and now have faith in his conclusions. Those parts of our city which have suffered most confirm us in the opinion we have embraced.

Notice.

Owing to the death of one of our assistant Examiners, Mr. Edward Jones, by the prevailing epidemic,—which we most sincerely regret to announce, as he was a gentleman whose loss will be most sincerely regretted by his family, friends and acquaintances,—we have been necessarily somewhat delayed in our Patent business. But having secured the services of a gentleman from Washington, we shall in future be prepared to execute all business in that line that may be entrusted to our agency, with promptness and despatch.—We have had an unusually large amount of Patent business for this season, notwithstanding which fact we have succeeded thus far in attending to the wants of our patrons.

Hungary.

By the late news from Europe, despotism appeared to be once more triumphant, in every nation but Hungary. May the brave Huns tame both the black and the double eagles, the emblems of the two despots who are seeking to wash out her liberties in her blood.

Newly Invented Tinting Tablets.

The facility of giving the effect of light and shade to drawings is enhanced, a late English journal says, by the introduction of this newly prepared tinted paper. With no other labor than merely scraping the surface when required by a penknife, a graduated light is obtained, up to a brilliant white.—Sketches made from nature, and but slightly tinted with color to the forms, are by this new and facile means readily embued with the atmospheric effects of the sky and cloud, vivacity of daylight, and the rapid induction of chiaro-scuro.

Ocean Navigation through the St. Lawrence River still interdicted.

Several annunciations have been made, through the public papers, that vessels were about to sail from the Lakes through the St. Lawrence to the Ocean, and thence to California. Probably these announcements have been made without first obtaining permission from the Canadian authorities. Those intending to send out vessels, we apprehend, will be disappointed. A few days ago, the Oswego Times says, a gentleman of that city applied to the Governor General of Canada for permission to pass a brig through the Canadian waters, which has been refused. The Secretary of the Province, under date of the 25th inst. in answer to the application says; "Questions respecting the policy and legality of such navigation have, on several occasions, engaged the serious consideration of Her Brittanic Majesty's Government, to such an extent, as to preclude his Excellency, in the exercise of his discretionary power as Governor of this Colony, from granting the permission sought for.

The London Era describes a full grown dog, of the terrier breed, which is only six months old, weighs less than thirteen ounces, is smaller than a good sized rat, and can kill a mouse.

Stopping Newspapers.

A class of conceited, touchy people, who stop a newspaper on account of any petty paragraph that displeases them, are cleverly ridiculed by an exchange as follows. The parable should be kept before the people:

A certain man hit his toe against a pebble stone and fell headlong to the ground. He was vexed, and under the influence of anger and active self-sufficiency, he kicked old mother earth right saucily. With imperturbable gravity, he looked to see the "great globe itself dissolved" and come to naught. But the earth remained, and only his poor foot was injured in the encounter. This is the way of man.—An article appears in a newspaper touching him in weak place, and straightway he sends word to stop his paper. With great self complacency, he looks on to see a crash, when the object of his spleen shall cease to be.—Poor fool, he has only his own toe against a world that does not perceptibly feel the shock, and injures to no extent, any one but himself.

Strange Calculation.

Some genius has perpetrated the following calculation:

"I have been married 32 years, during which time I have received from the hands of my wife three cups of coffee each day, two in the morning and one at night, making about 35,040 cups of half a pint each, or nearly 70 barrels of 30 gallons each, weighing 17,520 lbs. or nearly nine tons weight. Yet from that period I have scarcely varied in weight myself from 160 lbs. It will therefore be seen, that I have drunk in coffee alone, 218 times my own weight. I am not much of a meat eater, yet I presume I have consumed about eight ounces a day, which makes 5,806 lbs. or ten oxen. Of flour I have consumed in 32 years, about 50 barrels. For twenty years of this time, I drunk two wine-glasses of brandy each day, making 900 quarts. The Port wine, Madeira, whiskey punch, &c., I am not able to count, but they are not large. When we take into the account all the vegetables in addition, such as potatoes, peas, asparagus, strawberries cherries, apples, pears, peaches, raisins, &c. the amount consumed by an individual is most enormous. Now, my body has been renewed more than four times in 32 years; and taking it for granted that the water, of which I have drank, acts merely as a dilutent, yet, taken together, I conclude that I have consumed in 32 years, about the weight of 1,100 men of 160 lbs. each.

Black Lead.

The lead from which pencil points are made, comes from the principal plumbago mine in the world, at Barrowdale, Cumberland, England. It is situated in a hill, and instead of being worked constantly, like other mines, is opened once a year, when a sufficient quantity is taken out to supply the world for the year to come, when it is again closed with strong doors, bars and locks, until the next annual supply is required. From the time of Queen Elizabeth it is said that all the fine pencils in the world have been made of the black lead of this mine.

Crocodile's Age.

M. Beltrami, the author of some travels in Mexico, prides himself on being the first to make known the means of ascertaining the age of crocodiles. He says that a negro acquainted him with the fact, that a sort of bag is placed in the intestines of the crocodiles, which always contains a number of stones corresponding with the years of its life, it being a custom of these animals to swallow a stone on their birthday.

Things Lost Forever.

Lost wealth may be regained by a course of industry—the wreck of health repaired by temperance—forgotten knowledge restored by study—alienated friendship soothed into forgiveness—even forfeited reputation won back by penitence and by virtue. But who ever again looked upon his vanished hours—recalled his slighted years and stamped them with wisdom—or effaced from Heaven's record the fearful blot of a wasted life?

The science of imbuing the minds of the rising generation with elements of aristocracy, is termed by the United States Journal, the science of Haughty-culture, or a method of refining the breed of pumkins.

Composition of Wheat.

The best wheat yields about—

Water,	13	12
Gluten,	12	16
Starch,	67	69
Sugar and gum,	8	9
	100	97

The process for determining the relative amount of gluten, starch, sugar and gum is as follows:

Put a few ounces of flour carefully weighed, in a cotton or linen cloth. Pour cold water upon it and work up the dough with the fingers. All except the gluten strains through the cloth. This is then dried and weighed.

The gum and sugar then becomes dissolved in the water, but the starch settles at the bottom of the vessel. This water is poured off and the starch is thus obtained, and may be weighed. This water is next evaporated, and the gum and sugar also obtained in a dry state for weighing. This is not a perfect method—other methods more complicated give different results; but this is sufficiently accurate in a practical way for ascertaining the relative value of different specimens.

To make Drawn Butter.

In a quarter of a pound of butter, rub a tablespoonful of flour, and half a teaspoonful of salt, until it becomes a smooth batter. Have ready half a pint of boiling water, in a sauce pan; stir the batter into it until perfectly smooth, and let it simmer for fifteen minutes, stirring it frequently. Some cooks will tell you it must be stirred all the time it is on the fire which is quite unnecessary, as all that is intended by such directions is, that it must be watched and stirred often enough to prevent it from becoming "lumpy," and burning to the bottom of the sauce pan.

This drawn butter is the foundation of most gravies and sauces—as oyster sauce, celery sauce, &c.

An Earthquake.

On the night of the 23d ult., a shock of an earthquake was felt at Santiago de Cuba. The inhabitants were generally asleep at the time but they were awakened by the severity of the shock. They rushed into the street, which for a time presented a scene of indescribable confusion. No damage was done.

Fire by Friction.

A fire recently occurred at the Shaker settlement, N. H., caused by the friction of an old indigo mill, which generated so much heat that it set the building on fire, and with it, two others were consumed.

A Singular Lake.

About ten miles to the southeast of Saratoga Springs there is a small lake, well worthy the attention of the curious geologist. Around it, for a considerable distance, stretches a valley that shows many indications of having once been full of water, but has been drained by the bursting of its southern boundary towards the Mohawk river. In the centre, deeply shaded by wood, lies the present lake, not more than a quarter of a mile in width, but three miles in length. The shape is serpentine, and although several small streams empty into it, no outlet has ever been discovered. Very slight changes only are perceptible in the water mark, even at the period of the spring freshets. No soundings have ever been made in it yet, although deep sea lines have been used. The shores are bold and perpendicular as a wall descending downward to an unknown depth. The mightiest ship that ever floated could touch the shore in any place with safety. Its surface is calm as a mirror, for it is seldom touched by the boisterous wind. The water though seemingly clear, looks black from its great depth and the shadow of the trees on the shore.

Cutting Telegraph Wires.

Some person, on Thursday, about noon, last week, cut the working wire of House's Telegraph, at Hackensack Bridge, and connected it with the wire running to Fort Lee. The connection was done in such workmanlike manner, that the cause of the impediment could not be detected until Sunday. The delay from Thursday to yesterday, on this line, was of a provoking nature. The wires were connected evidently by some experienced hand.

Singular Preservation of a Glass Jar.

The Cincinnati Globe relates the following: A singular fact was told yesterday at Messrs. Livingston & Fargo's office, relative to the accident which occured on the Mad River Railroad last week. When the express car was overturned, most of the boxes and parcels were broken open and more or less injured. Among the boxes was one directed to a druggist in this city, enclosing a tin box, which also enclosed an antique glass jar from Egypt. This jar contained Otto of Roses, valued at $1500. The outside wooden box was broken open and also the tin case, but, strange to say, the glass jar was entirely uninjured, while carefully secured boxes and parcels around and near it were crushed. The owner of the Otto of Roses had been very anxious about its arrival for several days, and when he heard of the accident on the railroad despaired of receiving the precious stuff. On the evening that Messrs. Livingston & Fargo delivered him the jar in safety he was taken with the cholera, and died the day after.

Serious Railroad Accident.

A serious accident occurred near Princeton, N. J, last week, by which a locomotive and two cars were thrown from the track, two persons killed and 20 more or less wounded—The accident was caused by the misplacement of a switch, which was said to be done wilfully by some person unknown. A reward of $1,000 has been offered by the Company, for the detection of the rascal, who we believe to be no other than the carelessness of the Company. There is gross mismanagement on some of our railroads, owing to a want of a sufficient number of switch-tenders or guards, and this we believe was the cause of this accident.

Best Currant Wine.

Wash the currants and strain the juice through a flannel bag. To every gallon of juice add two gallons of soft water; and to every gallon of the mixture (juice and water) add three pounds of Orleans sugar and half a pint of good brandy. Fill the cask and put it in the cellar to ferment. When the fermentation is going on, every morning fill up the cask with cold water, covering the bung hole lightly with thin cloth. As soon as the fermentation is over, bung the cask up tight, and let it remain one year, then draw and bottle it. The brandy is (in this case) added before the fermentation takes place on which the goodness of the wine depends, and which prevents acetous smell and taste. In about 20 days the froth will disappear from the bung hole, then bung the cask tight and bore a gimlet hole and leave open for a week or two, when the peg may be driven in tight.

What has become of the ærial steamer.—The inventors have missed a most splendid chance. Every body wanted lately to get away to the country, to the mountains of the moon or somewhere. The ærial balloon was the very conveyance desired, but it was nowhere.

At Syracuse the city authorities, on the recommendation of a stranger, have taken to sprinkling the streets with salt water. It not only is salubrious, by checking decomposition but is more cooling than ordinary water, and making a cement of the dust transforms it into a pavement.

We hear of rattlesnakes being killed in every quarter, this summer. One man at Peoria, Illinois, killed 290 in one day. A whopper 8 inches thick, was killed last week at Chester, Ct.

A mustard bath is said to be one of the best reliefs for cramps and pains, that has as yet been discovered.

The Fast day was remarkably well observed in the City of New York. Churches that were kept open for public services were filled to overflowing.

Dr. John Croghan, proprietor of the Mammoth Cave in Kentucky is dead. The house and grounds are to be kept open to visitors.

A bale of new cotton was sold in New Orleans, of excellent quality, on the 24th ult.

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Embroidery.—Hand and Power.

Embroidery is the art of adding to the surface of woven textures, a representation of any object we wish to depict, through the medium of the needle, threaded with the material in which the work is to be executed. This may be effected by various methods, and on most descriptions of fabrics.

We are indebted to the luxury and magnificence of the nations of the East, for the invention of embroidery,—an art that has not inaptly been termed the mother of painting, its discovery claiming the priority by many centuries. In more modern times, it has been called the humble sister of the latter art; and the aim of the needlewoman has been to imitate, as closely as possible, the productions of the pencil, a labor in which she has been assisted by some of the most celebrated masters, many of whose works have been executed for the express purpose of being copied in needlework or tapestry.

The Greeks gave the honor of the invention of embroidery to Minerva; by Pliny it has been assignned to the Phrygians; he says the Romans called embroideries "Phrygiones."—The women of Sidon, before the Trojan war, were especially celebrated for their skill in this art; and Homer mentions Helen as being engaged in embroidering the combats of the Greeks and Trojans:

The art of embroidery was greatly practised among the ancient Egyptians; even the sails of some of their ships were wrought with fanciful devices, representing the phœnix, flowers, and various emblems. In the time of Moses, Aholiab, the son of Ahisamach, of the tribe of Dan, was celebrated as "a cunning workman," and as an embroiderer in blue, in purple, in scarlet, and in fine linen. The curtains and ornaments of the Tabernacle, and the vestments of the priests, were decorated with embroidery.

Tarquinius Priscus, who first distinguished the monarch and senators by particular robes and ornaments, was the first Roman king who wore an embroidered garment.

The term embroidery, as employed in the writings of the ancient historians, has reference to all kinds of ornamental work done with the needle; thus comprehending within its meaning every description of decorative needlework, including tapestry and some descriptions of weaving. In the extended meaning of the term, nations and savage tribes unknown to the ancients, may equally claim the honor of a similar invention, as most of them have a species of embroidery peculiarly their own.

The Chinese have long been celebrated for the beauty of their embroideries; indeed, it has been doubted whether the art was not originally brought into Europe from them, through the Persians. They use floss and twisted silks, also the bark of a tree spun into a fine thread. The drawing of their embroideries is as uncouth as that of their paintings, but in some of their flowers, are botanically correct; and their works are not more to be admired for their remarkable freshness than for the extreme labor bestowed upon them. Success, as gained by patient application, is exemplified in China. The mere accomplishment of writing a good style, is the result only of many tedious years of study and self-denial. A Chinese uses no short cuts, resorts to no compendious methods for abridging labor; he is not without ingenious resources to accomplish an end, but his aim does not seem to be to save time.

The finest specimens of embroidery are done by men who stand while at work. Much skill and labor are bestowed on the embroidery of a plaited skirt worn by Chinese ladies, which is without a rival for beauty as an article of female attire. Embroidery and figured textures were generally in favor with the ancients, so that the discovery was thought worthy of a superior agency. The Chinese are fond of retaining what is old, and have preserved both these arts in their highest state of perfection.

(*Concluded next week.*)

"I wuns't know'd a county Meath man and a mighty quare janius he was, that took it into his head to invint perpituil motion, and he actually made an eight-day clock that run three weeks!" So says Patrick.

Obligation to Brutes.

Brutes are sensitive beings, capable of, probably as great degrees of physicial pleasure and pain as ourselves. They are endowed with instinct, which is probably a form of intellect inferior to our own, but which, being generically unlike to ours, we are unable to understand. They differ from us chiefly in being destitute of any moral faculty. We do not stand to them in the relation of equality. Our right is paramount, and must extinguish theirs. We have therefore a right to use them to promote our comfort, and may innocently take their life if our necessities demand it.—This right over them is given to us by the revealed will of God. But inasmuch as they, like ourselves, are the creatures of God, we have no right to use them in any other manner than that which God has permitted. They as much as ourselves, are under his protection. We may therefore use them for our necessities. We are designed to subsist partly upon animal food; and we may innocently slay them for this purpose. We may use them for labor, or for innocent physical recreation, as when we employ the horse for draught or for the saddle. But while we so use them, we are bound to treat them kindly, to furnish them sufficient food and with convenient shelter. He who cannot feed a brute well, ought not to own one. And when we put them to death, it should be with the least possible pain. We are forbidden to treat them unkindly on any pretence, or for any reason; there can be no clearer indication of a degraded and ferocious temper than cruelty to animals. Hunting, in many cases, and horse-racing, seems to be liable to censure in this respect. Why should a man, for the sake of showing his skill as a marksman, coolly shoot down a poor animal, which he does not need for food? Why should not the brute that is harming no living thing, be permitted to enjoy the happiness of its physicial nature unmolested? "There they are privileged; and he who hurts or harms them there, is guilty of a wrong." Hence all amusements which consist in inflicting pain upon animals such as bull-baiting, cock-fighting, &c., are purely wicked. God never gave us power over animals for such purposes. We can scarcely conceive of a more revolting exhibition of human nature than that which is seen when men assemble to witness the misery which brutes inflict upon each other. Surely nothing can tend more directly to harden men in worse than brutal ferocity.

Remedies against the Cloth Moth.

It is an old custom with some housewives to throw into their drawers, where woolen articles are kept, a number of fir-cones, under the idea that their strong resinous smell might keep away the moth. As the odor of these cones is due to turpentine, it occurred to Reaumur to try the effect of this volatile liquid.—He rubbed one side of a piece of cloth with turpentine, and put some grubs on the other; the next morning they were all dead, having voluntarily abandoned their sheaths. On smearing some paper slightly with the oil, and putting it into a bottle with some grubs, the weakest were immediately killed; the most vigorous struggled violently for two or three hours, quitted their sheaths, and died in convulsions. It was soon evident that the vapor of oil or spirits of turpentine acts as a terrible poison to the moth grubs. Perhaps it may be said that even this remedy is worse than the disease; but as Reaumur justly observes, we keep away from a newly painted room or leave off, a few days, a coat from which stains have been removed by turpentine; why, therefore, can we not once a year keep away for a day or two from rooms that have been impregnated with the smell of turpentine? It is, however, surprising how small a quantity is required.—A small piece of paper or linen just moistened with it, and put into the wardrobe or drawers, for a single day or two or three times a year, is a sufficient preservative against moths. If a small quantity of turpentine be dissolved in spirits of wine, whereby the odor will be almost wholly removed, it will be a sufficient preservative.

There were about 7,000,000 gallons of ardent spirits consumed in Ireland last year.—This would amount to about $9,000,000.

Contraction and Expansion.

From certain experiments made in America by a gentleman of practical scientific research it appears that it is impossible, in countries having a variation of more than 90 degrees Fahrenheit annual temperature, to construct a coping of stones five feet long in which the joints will be water-tight. Mr. Lyell, proceeding on the calculations arrived at in these experiments, states that if we can suppose a mass of sandstone a mile in thickness to have its temperature raised 200 degrees Farenheit, it would lift a superincumbent layer of rock to the height of ten feet. "But suppose a part of the earth's crust 100 miles thick and equally expansible, the temperature of which was raised 600 or 700 degrees. This might produce an elevation of between 2000 and 3000 feet. The cooling of the same mass again, might afterwards cause the overlying rocks to sink down again, and resume their original position. By such agency we might explain the gradual rise of Scandinavia." Calculations have been made by geologists which appear to account for the elevation of land in Sweden by a rise of only three degrees temperature, (Reaumer,) supposing the stratum to be 140,000 feet thick. Upon a similar supposition, the rise and fall of the waters of the Caspian Sea might be explained, supposing its bed subject to alternate elevations and depression of temperature. Again, if the strata were principally clay, as it is well known that that substance contracts when heated, we might account for the subsidence of land on the supposition that the clay strata were contracting under the influence of heat. No one at all acquainted with the enormous, the, in truth, immeasurable force of attraction and expansion under the influence of caloric, will feel a doubt that the caused assigned is at least adequate to the effects produced. Yet how apparently inappreciable the amount of increase in a heat-expanded stone!

Physiology of Vision.

The desire to conceal from the world any imperfection which wounds our self love, is inherent in the human heart, and leads to all sorts of artifices on the part of those who, by natural conformation, advancing years, or other causes, suffer from imperfection in their vision. Thus it is, that some persons prefer to use an eye-glass, others reading glasses, in lieu of spectacles. Reading glasses, however, are objectionable from their not being firmly fixed in front of the eyes. The motion of the head not being in accordance with that of the hand which holds the glasses, has the effect of trying the eyes exceedingly, in their constant and ineffectual endeavor to adjust themselves to the position of the glasses, inducing unnecessary fatigue to the eyes, and rendering necessary an earlier resort to glasses of a higher power than would have been required had proper spectacles been adopted from the commencement. But a single eye glass is more injurious still; and many young men, who, from shortness of sight, or a singular vanity, have thought proper to use a quizzing glass, as it is termed, have had reason to regret it to the end of their lives. The consequences to perfect vision are serious, for as one eye is made to do more work than the other, an alteration in their relative strength takes place; the result is, that sooner or later, when the person resorts to spectacles, he finds that the lens which suits one eye will not suffice for the other. Watchmakers and other artists, who work with a magnifier, are very subject to this imperfection of vision, and generally find that they see better with one eye than the other. If, instead of always applying the magnifying glass to one eye, they were to use the other eye in turn, a habit which might be easily acquired in early life, although with diffieulty afterwards, they would preserve the power of their eyes more equally and the perfection of vision longer; for, by using the eyes alternately, rest and an opportunity of recovering from the fatigue produced by the exertion of looking through the magnifier, would be afforded to each. In like manner, those who indulge in microscopical or astronomical pursuits should learn to use either eye indifferently, instead of always trusting to one, although we almost instinctively apply the right eye to a telescope or microscope.

Effects of Opium.

Unless taken for the relief of disease, and even then administered with the greatest caution, the continued action of opium, as a sensual stimulant, tends rapidly to the wasting of youth, health, strength and beauty. Those who begin its use at twenty may expect to die at thirty years of age; the countenance becomes pallid; the eyes assume a wild brightness, the memory fails, the gait totters, mental exertion and moral courage sink, and a frightful marasmus or atrophy reduces the victim to a ghastly spectacle, who has ceased to live before he has eased to exist. There is no slavery so complete as that of the opium-taker; once habituated to his dose as a factitious stimulant, everything will be endured rather than the privation, and the unhappy being endures all the mortification of a consciousness of his own degraded state, while ready to sell wife and children, body and soul for the continuance of his wretched and transient delight; transient indeed—for at length the utmost effect produced is a temporary suspension of agony; and finally, no dose of the drug will remove or relieve a state of suffering which it is utterly impossible to describe. The pleasureable sensations and imaginative ideas arising at first soon pass away, they become fainter and fainter, and at last entirely give place to horrid dreams and appalling pictures of death: spectres of fearful visage haunt the mind—the light which once seemed to emanate from heaven is converted into the gloom of hell—sleep, balmy sleep, has fled forever—night succeeds day, only to be clothed with never-ending horrors:—incessant sickness, vomiting, diarrhœa, and total cessation of the digestive functions ensue; and death at length brings, with its annihilation of the corporeal structure, the sole relief to the victim of sensual and criminal indulgence

Singular Prophecy.

Lorenzo Dow, of eccentric memory, was in possession of a German work on the Prophecies, which he valued highly, and frequently made quotations from. Among other remarkable sayings of the author, were these:—

"I would not be a king, in 1848."
"I would not be a grave digger in 1849."
"I would not be a soldier, in 1850."
"I would be either, in 1851."

The work alluded to was written about 200 years ago. It certainly possesses an interest for the curious. How frail the tenure by which kings held their crown in 1848! Who would like the office of grave digger in 1849, unless he was solely mercenary? How more than presumable is it that the military men of the earth will contribute multitudes in 1850, to fill a wide and quiet grave! And we may hope, at least, in 1851, for the fair harbingers which promise "peace on earth, and good will to men."—[Jour. of Com.

[The above is all fal-de-ral. Kings held their crowns in 1848 by as strong a tenure as they did in 1832. 1849, so far, has been a tolerable good year for grave diggers, and 1850 in all likelihood will be a good year for soldiers, as fighting is surely some part of their business. We will wait for 1851. It is very likely that it may be as eventful as some other years past and gone since this wonderful book, 200 years old, was written.

The Secret of Diligence.

"Seest thou a man diligent in his business?" says Solomon, "he shall stand before kings." We have a striking illustration of this aphorism in the life of Dr. Franklin, who, quoting the sentence himself, adds: "This is true; I have stood in the presence of five kings, and once had the honour of dining with one." All in consequence of his having been "diligent in business" from his earliest years. What a lesson is this for our youth, and for us all!

Mr. Green the celebrated English æronaut has been drowned. He was found dead on the Flathouse Sands. His balloon was seen floating away to sea, but it was afterwards found on shore uninjured.

Mr. Norris, the great engine builder, contemplates building a large machine shop in St. Louis, Mo.

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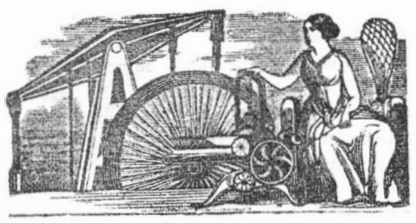


New Inventions.

Improvements in Steam Boilers.

Messrs. W. N. and Alinzor Clark, of Chester, Ct., have taken measures to secure a patent, for an improvement made by them in steam boilers, which consists in increasing the heating surface of the boiler inversely by decreasing the quantity of water in the boiler but keeping up the same surface of exposure to the heat. This is done by an interior dividing log, which answers at the same time to prevent incrustations. The boiler on which the improvement has been made, is stated to have been in use for some time, and given the most satisfactory results.

New Railroad Car Coupling.

Messrs. Crawford & Grew, of the North Western Railroad Line, (Eng.) have invented a new coupling which consists of nothing more than two links or hooks, connected by what is termed a right and left-handed screw, the peculiarity of which is, that by turning it in one direction the links are drawn close together, and by turning it in the other, the links are extended. The "cramp," when being used, is hooked to the side chains of the carriages, and by its action the buffers are compressed, the carriages drawn nearer together, and the connecting link removed or attached with remarkable ease and a considerable saving of time.

New Rotary Engine.

By the London Patent Journal (Barlow and Payne,) we learn that in the office of the London Times a rotary engine has recently been erected for driving the printing machines, and which, by the way, is a compact piece of workmanship, but we leave time and experience to pronounce on its real merits—its working economy. It only occupies a space of about 7 feet long and 4 feet wide—and the highest part of the engine is only 3 feet above the floor of the room. It gives direct motion to a crank on the engine shaft, and exerts a perfectly uniform force on it throughout the revolution: and when driven by gearing without a flywheel, there is no 'back lash' in the wheels; the steam can be cut off at a very early part of the stroke without materially affecting the regularity of the driving force; and, although the speed of the piston (that is, of the disc rings) is only 200 feet per minute, the engine makes three times as many revolutions per minute as the common engine.

New Fire Arms.

A new species of fire arms is coming into use in the Prussian service. The invention is described by the Berlin correspondent of the Daily News:—"The greater part of the Prussian infantry are armed with a heavy long barrelled musket, which loads at the breech and which they call Zundnadel Gewehr.—With this musket half a dozen shots may be fired in the same time as one with a common musket. It kills as far and carries with the same precision as a rifle; as the recent practice at Potsdam, witnessed by the King and Gen. Wrangle, proves. Military men here pretend that light batteries will not be usable in the face of infantry so armed, for the Zundnadel Gewehr men will be able to pick down the gunners at their cannon within common range. I have heard Prussian officers express the wish that, if there is to be a war, it may come as soon as possible, while the Prussians are the only infantry armed with the Zundnadel Gewehr."

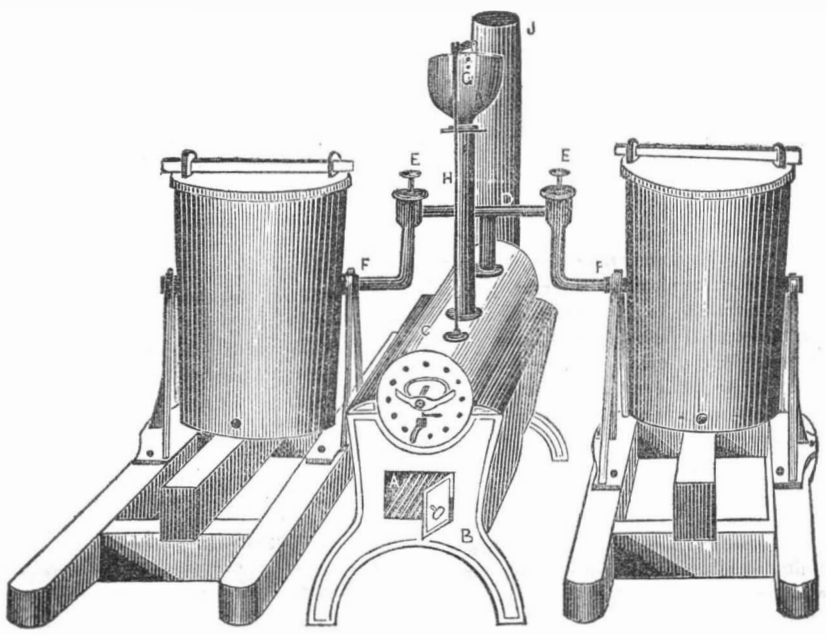
[This kind of gun is well known in the United States, and has been for ten years past.

A solution of salt and borax, is an excellent dentrifice for washing the teeth. It keeps them white and clean, and is not unpleasant to use

Machine for Making the Copper Type.

The machine which has been exhibiting in London to make type out of hard metal, is the invention of a Mr. Pettit, (a Frenchman no doubt,) which is thus described. The object of the invention is to perfect, by means of self acting machinery, printing type of a durability almost infinite. This is effected by the use of hard metals, copper being the material ultimately adopted by the inventor after many experiments. The new process in type making, as shown by this invention, brings the most important and intellectual department of industry into harmony with the mechanical genius and improvements of the age. Instead of the old and complicated processes by which types were formerly founded, a strip of copper wire, upon a revolving wheel, passes through a series of wheels, levers, pulleys and cranks, of the simplest description in reality; the type is struck or punched at the same moment that its size is mathematically determined; and after passing two other simple machines, is ready for use. By means of a small steam engine, applied to the type making machine sixty per minute can be struck, or thirty six thousand per diem. The clearness and beauty of the impression of the types thus produced delight all connoiseurs. In the new process, instead of fusing the metals, and pouring into moulds to give the necessary form, the inventor of the apyrotype machine effects this by a mechanical operation at ordinary temperatures, chiefly by means of powerful pressure and the use of steel dies and matrices. The type thus produced possesses the utmost sharpness of outline and hardness, in consequence of the superiority of the metal employed, and the pressure to which it has been subjected.

FARMERS' APPARATUS FOR STEAMING CATTLE FEED.



This is a horizontal steam boiler connected with two Feed Kettles, the whole being made portable and convenient for use. A, is the furnace of the steam boiler. It is enclosed between two iron side plates which are attached before and behind to back and front standards B B. The boiler C, rests in the curved bearings of the standards and the plates with the standards form the flues, which should be plastered inside with fire clay. J, is the smoke pipe. The boiler has a feed cistern G, which has a valve in the bottom that is opened and closed by the rising and falling of a float in the steam boiler. The rod H, connects the float and feed valves together. D, is a pipe from the steam boiler with branches F F, to steam the feed in the two kettles at the side. E E, are two screw valves to shut off and let on the steam to one or both kettles as may be desired. The feed kettles may have small pieces of pipe to screw on to the elbow F F, and in that case the kettles can be lifted off at pleasure. The branch pipes may also be let in at the bottom as well as any other part. The kettles should have tight covers; we would advise farmers who might have such an apparatus made, to get metal covers to screw down tight, and with a small safety valve on them. This would affect a great saving and would be far better than without a steam tight cover, as it has lately been discovered, that bones become soft when submitted for some time to the action of steam.—Our farmers who are at great expense to feed their cattle during our long winters, would find this apparatus of great benefit--a great saving of food, the cattle kept in better condition, and the yield of milk from milk cows, nearly as large as during the summer months.

Apparatus for raising water from deep Mines.

In a late number of the London Mining Journal, there is the following description of a pump recently invented and patented by Messrs. Clark and Varley, which is very highly praised, as being an ingenious and novel arrangement for raising water from mines, or other deep places.

The plan is on the principle of atmospheric pressure, but unconfined by the law of hydraulic forces, by which the pressure of the atmosphere can only support a column of water 33 feet high; whereas, in Messrs. Clarke and Varley's plan, the depth may be 300 or 400 fathoms, and the effect will be the same, except as to the time in which a certain quantity of fluid is raised. The apparatus merely consists of plate iron, galvanized or coated with zinc to prevent corrosion. One-eigth of an inch would be sufficient to strengthen; and it might be two feet in diameter, extending to the bottom of the shaft. The tube is rivetted together in lengths of 30 feet, and then bolted by flange joints, the joints between the several lengths being carefully made so as to be air-tight. The top of this tube terminates in an air-tight cistern, communicating with an air pump, worked by a steam engine, or other power; at the bottom of this cistern is a valve, to allow the water to escape when raised. The bottom of the tube extends nearly to the surface of the water in the pump, and is furnished with a piston or diaphragm, sufficiently heavy to fall to the bottom by its own weight. From the bottom of this main tube and beneath the piston, a smaller tube bends upward of sufficient length to be out of reach of the water, and provided with a valve, and from a point just above the piston, another pipe descends some feet into the water, which completes the arrangements. The *rationale* of the plan is this: On exhausting the air from the cistern and tube, the water will flow in above the piston to a height corresponding with the state of exhaustion, or which may be regulated by the periods of opening the valve in the air-pipe. Suppose a column of 20 feet high, has flowed in, when the valve in the air pipe below being opened, the atmospheric pressure immediately forces up the piston with its load of water above; and as the exhaustion continues, it quickly arrives at the top, overflows in the cistern, and the exit valve being then opened, runs off through the channel prepared for it. The equilibrium being now restored, the piston falls to the bottom by its own gravity, such fall being regulated by the admission of air at the top of the cistern; the cistern valve and the air valve are now closed, when the operation is repeated, and goes on, *ad infinitum*, while the air pump is kept at work. It will be seen that after the first rise of water from the pump, due to the exhaustion, which we have taken at a 20 feet column, the hydraulic principle is at an end; and, on admitting air below the piston, the water is lifted the same as any other heavy body might be in the tube; it becomes a close atmospheric railway tube, with its load inside. A tube, 2 feet diameter, presents an area of 452 square inches; and supposing one exhaustion in a deep mine could be made per minute, a 20 feet column would give about 440 gallons per minute, which is above the average work of the largest Cornish engines. By increasing the area of the tube, any amount of water may be raised in a given time; if the pipe was 3 feet in diameter, then 880 gallons would be raised at each exhaustion. One important feature of this invention is that the water may be raised with any velocity, as its speed is never checked from the time it is set in motion till it is emptied into the cistern at the top.

[The above apparatus is constructed on the same principle as Winder's Hydraulic Engine, an engraving of which will be found on page 1 vol. 3, Sci. Am. Let any of our readers who have that number, compare the two descriptions and the conclusions of the comparison we have no doubt, will be about the same as the one we have arrived at. There is a little difference in the construction of the machinery, but that is all.

Labor Saving Soap.

We have received a number of communications lately respecting *labor saving* soap, two especially within two weeks, requesting our advice about securing patents and one employing us to act as agent and apply for a patent. We could not conscientiously act in this capacity, as we believe, that if a patent might be secured for the particular composition, it would be all lost money to the patentee, for the least variation in the component parts of the composition would obviate all liability of infringement. We have seen various receipts for making labor saving soap, to save the ladies, dear souls, from pounding and scrubbing; but we have not seen a single receipt, that was not made up of those substances well known and long used by bleachers, dyers and shawl washers, for removing dirt and grease from goods. It would be well, if a little more of the workshop science, was infused into domestic economy.

The black dirty oily wool is cleaned of its grease for dyeing without soap, that is, manufactured soap, for soda is used, which combines with the grease in the wool at a certain heat, and forms it into soap, making a substance soluble in water, and easily washed out of the wool. Fine goods are washed with soap first, then rinsed and then put through a weak solution of ammonia. If clothes were steeped in warm water, made soft, between the fingers with some soda dissolved in it, the night before they are to be washed, our women folk would find much labor saved.

To Sweeten Bread without Sugar.

It is not generally known that pure starch added to the flour and made into dough, will be partially converted into a species of sugar during the process of fermentation and baking and produces sweet wholesome board. From the experiments of Dr. Colquhoun, it appears that starch, arrowroot, farina of potatoes, or any similar amylaceous substances, made into jelly, with hot water, may be employed for this purpose with advantage. It is only necessary to mix the flour up with the jelly, instead of mere water, to add yeast and salt, and to bake it in the common way. Dr. Percival has recommended the addition of salep for this purpose. 1 oz. of salep dissolved in 1 quart of water, 2 lbs. of flour, 80 grains of salt, and 2 oz. of yeast, gave 3lbs. 2 oz. of good bread; but the same weight of materials, without the salep, gave only 2 3-4 lbs. If too much salep, however, be added, it will give its flavor to the bread.

If wood pulleys are boiled for seven or eight minutes in olive oil, they become nearly as hard as copper.

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NEW YORK, AUGUST 11, 1849.

Honorable Plunderers.

Like rouge on the cheek of the vain female, imparting to it the false flush of health and the rose bloom of beauty, so is that kind of honor with which a man appareleth himself, by wearing the honest fame which justly belongeth to another. And when cupidity of wealth is linked together with the cupidity of honor, the most atrocious traits of character meet in one focus. The poor of this world—the humble working classes, are generally exempt from these sins actually, although they may not be free from the lust of them. Literary plunderers are generally found among the *honorables* of this mundane sphere. They are men who can well afford to pay for a speech or a sermon.

The most heaven daring plunderers are the scientific kind—those men who rob inventors of their honors and rights, and appropriate the works of others to their own worldly tame and interest. In the U. S. Circuit Court in Philadelphia, a case once came up where an injunction was moved for to restrain a person from using a patented machine, when it was proven that the patentee stole the invention from the defendant, perjured himself, got a patent, and then had the audacity and criminality of heart, to move for restrainment against the real inventor, for using his own property. Who can forget the baseness of Sir Everard Home, who destroyed the whole manuscripts of that great man Sir John Hunter, in order that the wholesale plagiarism in the lectures of Comparative Anatomy, and papers to the Royal Society communicated by Home after Hunter's death, might not be detected. We might instance case upon case, of scientific plundering, to show unto the world, that man, worse in many instances than inferior races of animals, preys upon his own kind not from necessity, but concupisence of wealth or fame. Look at the case of Mr. Hudson, the Railway King, as he has been called, which is engaging so much attention in England at the present moment. This man from a comparative humble situation, arose by enterprize and industry to considerable wealth. Not content with an honest abundance, he aspired to be one of the "Honorable," and projected a fraudulent system of railway speculation, more gigantic, we believe, than the Mississippi bubble of Law. Up, up Mr Hudson went, till he took his seat among the Honorable M. P.'s of England, and received those considerations which wealth always brings there, the privilege of mingling in the society of Peer and Prince. Now lo and behold, for "murder will out," it has come to light, that his great wealth has been gained by fraudulent entries, and cunningly devised representations of the value of shares, by paying large dividends out of the capital. Who can forget the misery that was created a few years ago among a large portion of the working classes of Britain, those who by industry had accumulated some little funds against the necessities of sickness and old age. Thousands of this class of people, were induced to lift their money and invest it in Railway stocks, which was to increase twofold in value, as some had increased by the false means employed by Hudson and other *honorables* of the same stamp. At once the value of Rail way shares fell, and with their fall, perished the hopes and happiness of too many of England's most worthy industrious classes. At the present moment, by the latest foreign news, the Railway King is disgorging thousand after thousand of his ill gotten gains.—We have no hope that the most needy of those who have been robbed and ruined, will get even handed justice done to them. This would be a miracle, truly—no such acts of tardy justice need be expected by the poor from that most despicable class, *honorable* plunderers.

Professor Farraday and Lightning Rods.

The following ideas are condensed from a lecture of Professor Farraday delivered before the Royal Institution, London, on the 12th ult. The lecture has just come into our possession and we present the subject as being the opinions of a man of world wide fame, upon a subject, which has led to a little controversy in our columns. In alluding to the appearance of a flash of lightning, he remarked that it was never in a straight line but branched out like the long spark from an electrical machine. For this phenomenon, no cause had yet been assigned that was satisfactory to him, nor in his opinion, had the electrical condition of the upper regions been satisfacrily explained yet, and he thought it was better for him to admit ignorance than mislead by unsatisfactory explanation The long continued peals of thunder proceeding from instantaneous flashes, were caused by the lightning passing through one or two miles, and as sound travelled slowly, the several disruptions of the air rolled repeatedly on the ear. The identification of lightning with electricity has enabled us to place the force of lightning under control, and to conduct it safely to the ground, but in doing so the conductors must be well connected, or mistakes may occur. To exemplify this, he connected a wire from the prime conductor with several metallic articles in its course to the earth, and though by the connection, sparks were passing freely through the wire, yet a jet of gas was inflamed when it was brought near the metallic bodies with which the wire was connected. It will not do either to have the rod or wire near a body that may receive the electricity by induction. By mounting a large metallic globe on an insulated stand, several feet distant from the electrical machine, and while sparks were being taken from the machine by a ball held near it, yet the electricity induced in the large globe, was sufficient to set fire to a jet of gas. The importance of taking into consideration the influence of induction, where the operation was conducted on the large scale of nature, was very apparent and of the utmost consequence, especially in the construction of powder mills and other places, which contained inflammable materials.

There is no secret about the construction of lightning rods. Isolate the rod from the building by some non-conducting material; make it continuous into some moist part of the earth; the greater the amount of conducting surface the better, but a wire is better than none; and the plating of the point, will not cost a sixpence.

Mosaic Art.

During the last ten or eleven years cements covered with metallic oxides have been employed for Mosaics, and they answer very well for indoor work. Bitumen colored with metallic oxides has been tried, the ground work being first cast in moulds and the interstices then filled up with bitumen of various shades. This composition is any thing but good, for however beautiful and pliable the substance may be for variety of pattern, the surface soon becomes uneven, and then the pattern is spoiled. Within a few years a kind of beautiful mosaic has been made in England It consists in a mosaic of pottery tile, ornamented with figures of different colors. The tile is made first of a clay for that purpose about six inches square, into the surface of which, while it is soft, are impressed metal dies, which stamp the pattern in the clay, and then it is filled up (where it was depressed,) with clay of different colors. The tile is then baked and covered with a firm glaze, which completely protects it—this tile now forming a beautiful substance for mosaics was known in England in the 14th century, but was lost until 1830, when it was re-invented and a patent granted for it. The ancient Roman mosaic is the most beautiful of all, and in St. Peters at Rome, there are some splendid works of it. The chapel of St. Lawrence in Florence, which contains the tombs of the Medici, has been greatly admired, on account of the great multitude of precious marbles, and beautiful stones on its walls, and hitherto the beauty of all mosaic works has depended on the value of the materials which composed them, but within a few years, a beautiful porcelain mosaic has been invented, which has carried the art to a higher perfection than was ever attained by the ancients. In 1840 a Mr. Prosser of Birmingham, England, found that if a mixture of fine porcelain (clay and flint) was reduced to a dry powder, and in that state subjected to strong pressure between steel dies, the powder was compressed into about one fourth of its bulk, and converted into a substance, very compact, of great hardness and density, less pourous, and harder than porcelain unpressed and baked in a furnace.—This discovery was first employed by Mr. Prosser in the manufacture of buttons, but it was afterwards applied to the making of mosaic by Mr. Blashfield, and squares, cubes, triangles, hexagons, polygons and rhomboids are all formed by this process, and the surfaces of the blocks can be beautifully enamelled with the most brilliant tints of gold, &c. and the most perfect substitutes for the old glass mosaic produced. The blocks of this substance are arranged according to design and laid in the usual way.

It was not long since a patent was granted at Washington, for the reduction of coal dust to solid lumps, by this same plan. Within three years considerable noise has been made about the manufacture of glass blocks of various colors, as being well adapted for flooring. The Rev. Mr. Pepper, of Albany, N. Y., Dr. Chilton, of this city, and a gentleman of Hartford, Ct., have severally been considered discoverers. There are various substances which may be combined in various proportions to produce in a pottery kiln, exceedingly beautiful agate, well adapted were it easily polished afterwards, for a great number of purposes, for which stone is now used. But the expense of the manufacture, as it is at present prosecuted and performed, is too great to allow it to be brought into general use.

Natural and Artificial Springs.

Natural mineral springs have an advantage over artificial waters, in most instances, in being favored by auxillary circumstances calculated to promote the restoration to health. Thus the journey to the springs, the change of air and scene, the beauty of the scenery and interesting environs of most of them, the temporary freedom from cares and annoying avocations, the early rising and exercise in the open air, are circumstances of great importance in assisting the action of the waters, and in several of the slightest ailments would probably alone suffice to rectify the deranged condition of the system; but it must be borne in mind, on the other hand, that in several of the worst cases, in those who resort to mineral springs for relief, these circumstances can have no influence, and the beneficial effects are solely to be attributed to the action of the waters. Many persons who care little about the beauties of scenery, and take no interest in public amusements, soon become tired, and experience discomfort at being separated from their homes and friends, and are only induced to subject themselves to the inconveniences of a long journey to a mineral spring, by the expectation of the benefit which they know from experience they are likely to derive from it.—Many persons, again, engaged in business, soon experience at a bath the influence of ennui—are disinclined to form new acquaintances, and are anxious respecting the course of their affairs, and yet are induced to prolong their stay from the evident improvement in their health during the course; though perhaps little or no alteration is made in their ordinary habits. Such persons, where a course of bathing is not required, will often derive as much benefit from drinking an artificial water; which may also be recommended as an efficient substitute, when a person cannot undertake a long journey, or if he be an inhabitant of a town where there is an establishment of mineral waters, and is disinclined to absent himself from his family and usual avocations.

When drinking is the more essential part of the treatment, artificial waters have in some respects the advantage over natural ones; as they are available during the greater part of the year, instead of being restricted to a few months in the summer, they may also in some cases be used as a preparatory measure, or subsequent to the use of the natural springs.

Many chalybeate waters contain an exceedingly minute quantity of proto-carbonate of iron, and yet exercise an astonishing power in recruiting the exhausted frame. Their virtue has been supposed to consist in the metal being oxidized to a minumum and diffused by the agency of a mild acid through a great body of water, in which state it is taken up by the lacteals of the invalid, and soon imparts a ruddy hue to the pale countenance. The qualities of such a water may be exactly imitated by dissolving 3 grains of the sulphate of iron and 60 of the bi-carbonate of potash in a quart of cool water, then shake it well in a close bottle.

Dr. Comstock on Atmospheric Electricity.

Dr. J. L. Comstock, of Hartford, has recently put forth several statements to substantiate his theory that there will be little thunder and lightning in and about those places which are traversed by Railway tracks and Telegraphic wires—for the reason that the metallic surfaces constantly attract the electricity of the clouds and dissipate the power that would otherwise result in explosions. It is stated that in Hartford, since the building of railroads and the erection of telegraphic wires, there has been a remarkable scarcity of thunder storms. During the time extending from the Winter of '47 to October last, not one severe storm of this description occurred, and lightning was seen but three times from June to October.

[The Doctor will no doubt fully prove the absence of thunder in the winter season, by the above hypothesis. But the absence of it during the same season of the year prior to 1847, may give him some trouble to account for.

The Arts in England.---Painting and Water Color.

The English artists are paying great attention to painting in water colors, a species of painting that until recently has not been held in as much esteem as it deserves. A gallery of drawings in water colors has been opened at London, and a correspondent of the New York Post says the English artists have shown that as much, though in a somewhat different way, may be done on drawing paper as on canvass; that as high a degree of expression may be reached, as much strength given to the color, and as much boldness to the lights and shadows. The life pieces by Hunt are represented as remarkable, but it is to landscape that the artists in water colors have principally devoted their attention.

Sonth Carolina Cotton Crop.

The Charleston Mercury of Monday publishes an extract of a letter from a highly intelligent gentleman from the central portion of the State, which says that the deficiency in the cotton crop will be beyond the calculation of the least sanguine of the planters. The April frost and snow, the defective stands and the grassiness and backwardness of the crops, added to the long spells of cold rainy weather recently experienced, have blighted the prospects of the cotton planter, and the fact stands revealed that the crop must be exceedingly short

Mummy Cloths.

(Cairo newspapers) enter into a long calculation of the number of mummies which must have been embalmed and deposited in crypta, pits, sepulchral chambers, &c, during the existence of Ancient Egypt as a great and populous country; and proposes that Mahomet Pasha should allow their clothing to become an article of extended commerce in the linen trade, valued at least, at ten millions and a half of dollars!! The digging up this treasure, it is farther calculated, would bring to light jewels and other materials of archæological price!

Printers in Philadelphia.

It appears from a statement made in the Philadelphia Typographical Society, that in that city the whole number of printing offices is 99, employing 446 compositors, 113 pressmen 69 apprentices, and 109 minors, who set type, making, a total of 728 persons. As the the present however is a dull season, and the offices have not the usual amount of work, the number of journeymen compositors is much less than the average. It is estimated that about 150 of this class are unemployed.

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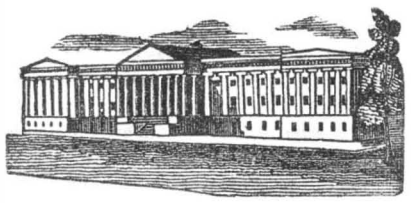

LIST OF PATENTS.

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending July 31, 1849.

To John Rich, of Troy, N. Y., for improvement in Ploughs. Patented July 31, 1849.

To Benjamin Chambers, of Washington, D. C. for improvement in moveable Breeches for Fire Arms and the Locks and appurtenances of the same. Patented July 31, 1849.

To James La Dow, of Granville, Ohio, for improvement in Machines for Pegging Boots. Patented July 31, 1849.

To Charles Caples, of Savannah, Mo., for improvement in equalizing the action of Gearing in Horse Powers. Patented July 31, 1849.

To Asa Wheeler, of Warwick, Mass., for improvement in the method of hardening Metals. Patented July 31, 1849.

To James P. Ross, of Lewisburg, Pa., for improvement in the Valves of Rotary Engines. Patented July 31, 1849.

To George Callard, of Buffalo, N. Y., for improvement in Signal Lanterns. Patented July 31, 1849.

To William Peters, of Charlestown, Mass. for improvement in Machines to beat and brush Carpets. Patented July 31, 1849.

To Julius Weed, of Painesville, Ohio, for improvement in paring, coring and slicing Apples. Patented July 31, 1849.

To Jesse Warren, of Warren County, N. Y. for improvement in Ploughs. Patented July 31, 1849.

To Justin Mulhern, of St. Louis, Mo., for improvement in apparatus for Filtering Water. Patented July 31, 1849.

To Joseph A. Dugdale, of Selma, Ohio, for improvement in Bee Hives. Patented July 31, 1849.

RE-ISSUE.

To Milton D. Whipple, of Lowell, Mass., for improvement in the Machine for cleaning Wool from burrs and other foreign matter and also for Ginning Cotton. Patented October 28, 1840. Re-issued July 31, 1849.

Limestone Rock.

Two origins are now ascribed to limestone —one, that of chemical precipitation ; the the other, which has a direct connection with our subject, ascribes the formation to the labors of the infusoria. There can be no doubt that many of the enormous beds of this substance with which we are familiar, are the results of the accumulation of innumerable millions of these tiny creatures. They swarm in all waters, indifferently in salt as in fresh ; and secreting from the lime held in solution by such water the necessary material for their enormorous aggregation, in process of time, the vast strata of which we speak. For this purpose, it is necessary that they should be capable of multiplying immensely ; and this they do by the different process of spontaneous fissuration, germination, and developement of ova. The white calcareous so common at the bottoms of bogs and morasses has its origin in the ceaseless labors of these creatures ; and the " bog-iron ore" of geologists consists of the ferruginous shields of others. Thus, as has been aptly remarked by the old Latin proverb, " iron, flint, and lime, all formed by worms," which was probably a sly sarcasm against philosophy, modern science has shown to be actually true in the history of the animalcules. The Great Pyramid of Egypt has been looked upon by men as a miracle of humam power and skill ; yet every stone in its composition is a greater far, for the limestone of which the vast structure is built was erected long ago by an army of humble animalcules more numerous than all the hosts of a thousand Pharaohs.

The Wisconsin Legislature has passed a most remarkable Temperance Law. It is very stringent against selling and drinking. It is a step in advance of every other government.

The Eye.

The structure of the eye is one of the most remarkable works of nature. The exterior parts of this organ are admirably defended from injury, placed in the head at a certain depth, and surrounded with durable orbits of bone, they cannot be readily hurt ; the overarching eye-brows also contribute much to the beauty and preservation of this exquisite organ, the hairs preventing dust and sweat from falling into them from the forehead. The eyelids form another security, and by closing in our sleep, they shut out the light from disturbing our repose. The eye-lashes add still further to the perfection of the eyes ; they break the force of the light which might offend us, and guard the sight from dust or any other minute body which might cause it injury.

If the external structure of the eye be admirable, the internal is still more so. The globe of the eye is composed of coats, or tunicles, muscles, humors, and vessels. The exterior coat, which is called cornea, is transparent ; under this the choroid, which is full of vessels ; the next, uvea, circular, and colored ; there is an opening in the middle of it, which is called the pupil, and which generally appears black ; lastly, the retina, which is a fine fibrous expansion of the optic nerve.— The humors are—the aqueous, or watery, lying in the fore part of the globe immediately under the cornea ; this humor is thin, liquid, and transparent ; the chrystalline lies behind the opening in the middle of the uvea ; it is the least of the humors, of greater solidity, and on both sides convex ! the vitrious so called from its resemblance to melted glass, fills all the hind part of the cavity of the globe, and gives the spherical figure to the eye. The muscles of the eye are six, and by the excellence of their arrangement it is enabled to move in all directions. Vision is performed by the rays of light falling on the transparent outward coat of the eye, which, by its compactness and convexity, unites them into a focus; they are then passed through the aqueous humor and pupil of the eye to be more condensed by the chrystalline humor, which, from its lenticular form, is finely adapted to that purpose. The rays of light, thus brought to a common centre, penetrate the vitrious humor, and stimulate the retina, upon which the images of objects, painted in an inverse direction, are represented to the mind through the medium of the optic nerve. The extreme minuteness of this picture is wonderful ; for the space of eleven hundred yards, when it is represented in the bottom of the eye, makes no more than the tenth part of an inch !

The faculty of vision is one of the most wonderful properties of human nature, and particularly merits our attention. Though the image of outward objects is painted in the retina upside down, yet we see them in their proper situation. And what is still more admirable, with such a small organ as the eye, we perceive the largest objects, and take in the whole of their dimensions. From the height of a tower, we see at a distance below us, the numerous buildings of a large city painted with the utmost exactness and precision upon a surface scarcely three times as large as the head of a pin. So many millions of rays coming through a small aperture, are re-united in the retina, which covers the bottom of the eye, without the least confusion, and preserve among themselves the same order with the points of the objects from which they are reflected. From the topmast of a vessel we see the ocean covered with a vast fleet, and waves innumerable undulating around us; yet each of these waves, small as it is, reflects a volume of rays which meet the eye. On gaining the summit of some lofty mountain, we direct our view over the distant plains, every object we notice must reflect a mass of rays upon the eye, otherwise we could not distinguish the flowery meadow, the varied drapery of the forest, or the windings of the purling stream. Rays of light not only pass from these objects to our eyes, but are transmitted to every part of the surrounding atmosphere ; hence, wherever we pass, within a certain distance, the same objects are still visible. How seldom are these things considered ! The habit of seeing, as soon as we open our eyes, causes us to consider this operation as a thing simple in itself, and easy to be comprehended : yet it is utterly out of our power fully to explain the manner in which we come to see objects.—We know indeed how the image forms itself in the bottom of the eye, and that all the parts which compose it, contribute to it ; but this is not enough ; for the eye itself can have no idea what passes in it. The impression must reach the brain ; and in order to do that, the rays must paint an image on a coat woven with nerves, which correspond with those of the brain. In this way the motion, impressed by the rays on the nervous expansion, called the retina, is transmitted by the optic nerve to the brain ; but here darkness forbids our farther investigation.

Isthmus of Panama.

The productions of Central America are as varied as the climate, which, according to the level selected, may apparently be adapted to all wants. On the higher table lands wheat, barley, and the rare fruits and vegetables of Europe may be grown abundantly, as well as Indian corn, and in some parts rice. In the lower plains and valleys the soil yields annually two crops of Indian corn, and the sugar cane, bananas, mandiocca, pine-apples, cocoa nuts, sapots, and sweet potatoes are all raised or grow naturally. Indigo, cochineal, tobacco, vanilla, cotton, cocoa, sugar, and coffee, are also, according to the district, capable of the finest cultivation. Of the various small states into which Central America is now divided, Nicaragua, in point of natural gifts, is described to be the richest. Commencing the route from the Gulf of Nicoya, on the Pacific, we find that at this point pearls are fished, and that a shell-fish is found which yields a bright red dye. Here also is the mountain Aguacate, in which the few geologists who have visited Central America have asserted immense wealth lies buried, the localities of which are most evident. Passing on towards the plain of Nicaragua, the fields are " covered with high grass, studded with noble trees, and herds of cattle." Cocoa, indigo, rice, Indian corn, bananas, and cotton are here produced, and mahogany, cedar, and pine abound in the forests. Proceeding across to the eastern side of the lake there are cattle farms, on which are herds of from 10,000 to 40,000 oxen, bulls, and cows. Horses and mules are bred for riding and for burden. Sheep are reared on the up per plains, and swine are kept for flesh. Indigo can be raised for 2s. per lb. The cochineal plantations in some parts yield two crops each season. The capital of the State is Leon, near the small lake of that name, which communicates with Lake Nicaragua. The plain near this city is said to be characterised by a richness of soil not surpassed by any land in the world, yet it remains in primeval desolation With regard to the neighborhood of Lake Leon, Mr. Stephens's misgiving is that it would prove too beautiful for British or American energies not to relax beneath its influence. " It may be questioned," he observes, " whether, with the same scenery and climate, wants few and easily supplied luxuriating in the open air and by the side of this lovely lake, even the descendents of the Anglo-Saxon race would not lose their energy and industry."

Leaving the lakes and descending the river San Juan to the Atlantic, each bank is covered with valuable wood of all sizes and descriptions, and the land is of prodigious fertility.— Amongst other products this river abounds with manatees, an animal between a quadruped and a fish, affording excellent food and strikingly effectual as a speedy cure for scorbutic or scrofulous disorders. " The blood is said to become purified and the virulence of the complaint, thrown to the body, quickly disappears." The length of the animal is from 8 to 12 feet, and it weighs from 500 lb. to 800 lb. The harbour on the Atlantic in which the river San Juan discharges itself, is the best for large vessels on the whole range of coast. The climate of Nicaragua, generally, is considered very healthy, and there are no epidemical diseases peculiar to it.

From these details it would appear the country has but one want, and that is that it should become the seat of enterprise.

The city of Milwaukie, Wisconsin, has now a population of 16,000. In 1835, it possessed only one white inhabitant.

The Inventor of the Propeller.

The Yarmouth Herald a Nova Scotia paper, claims the invention of the propeller for Mr John Patch of that town, an engraving of whose improved propeller appeared in No. 5, this vol. Sci. American. The Herald says that he first applied the screw propeller in 1834 to a vessel about 20 tons burden. The first propeller was made of wood. Two twisting wooden fans were appended to a shaft similar to the propeller of which Loper has a patent, with the exception that Loper's has four fans. The next attempt was that of placing one complete turn of a screw about the end of the shaft which was made of wood about 25 feet in length ; and which he placed over the side of a small vessel—the end having the worm of the screw being in the water, the other placed in a bearing and turned by a wooden crank, the diameter of the screw in the water being 2½ feet.

The experiment was so successful that his friends advised him to apply for a patent in Washington, U. S. This was in 1834. While on his way thither, being in New York, by the advice of a friend he called on Mr. Stephens, who had the reputation of being an engineer of talent ; but Mr. Stephens would take no notice of the invention or inventor, considering the whole thing impracticable. Much discouraged, he proceeded on to Washington where parties assured him that it would be a waste of money to make his contemplated application for a patent. He, however, could hear of no patent at that time being granted for any thing of the kind. He did not therefore apply ; but returned home, and though laughed at and derided as a visionary, he persevered in experimenting.

In 1844, he conceived the idea of a double action Propeller, which consists of four spiral curvilinear tapering fans, set at an angle of forty five degrees to the shaft, two on each side united at the top. By this arrangement all parts of the propeller are made to act in unison, in applying the power to the purpose intended ; and at the same time avoiding the drawback of dead water. This was tried in this place, and found to transcend in power and velocity his most ardent anticipations.

Mr. Patch is at present in Boston pursuing investigations relating to the general laws of mechanics. He has exhibited models of this improvement on the original invention to a number of the scientific and practical mechanics and engineers of the United States, who concur, without a dissenting voice, that for power and speed combined in the smallest space, this last improvement is superior to any plan for a Screw Propeller now in use, and must eventually, when brought fairly before the attention of the public, supersede all others.

Mr. Patch is also the inventor of a number of improvements in Steam Engines, and improved modes of regulating the dip of paddle-wheels ; but like most men of mechanical genius, his pecuniary means have been inadequate to give practical efficiency to his own inventions. The prospect, however, at present is, that this last Propeller will ultimately place him in a position to devote himself, exclusively to subjects that are congenial to his habits of thought and action.

The Daring of Genius.

Authors and artists, who possess the enthusiasm peculiar to genius, in daring to deviate from the common road, are not always preserved from violating the proprieties observed by those " whose sober wishes never learnt to stray ;" but who while they were not destined to attain the elevation awarded to excellence have yet been preserved from encountering the perils of a higher flight ; and been content to find their indemnity in the loss of superior fame, by the consciousness of security in the more humble mediocrity. Such, however, was not the high resolve of Shakspeare, Milton, or Michael Angelo.

Never too late to Learn.

Some people scorn to be taught ; others are ashamed of it, as they would be of going to school when they are old ; but it is never too late to learn what it is always necessary to know ; and it is no shame to learn so long as we are ignorant—that is to say, so long as we live.

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TO CORRESPONDENTS.

"R. P. W. of Va."—Your letter is very encouraging, and shall be responded to by letter as soon as the necessary information can be obtained. Some of your views are erroneous, but we will set you right in the matter. $21 received, and each subscriber's name entered for six months, and the package forwarded on the 6th inst. by Adams & Co.'s Express.

"H. T. P. of S. C."—We are considering Mr. B.'s new method and shall write you in a few days with a full expression of our opinion.

"J. & M. of N. Y."—The specification and drawings of your improved Carding machine have been forwarded to Washington.—If you will forward the article referred to, we will give it attention.

"J. A. C. of Tenn."—We have no confidence whatever in your plan. The ingredients would weaken the fabric, and take the very life out of the cloth. In some of the back numbers of the Scientific American you will find receipts far better and less dangerous.

"S. P. R. of Maine."—Your views are evidently correct, and would repay an experiment. We shall be pleased to hear how you succeed.

"J. Q. G. of Pa."—We know nothing about the subject you mention, nor can we inform you what books treat upon it.

"W. G. H. of Pa."—We understand the nature of your invention perfectly, and gave you our candid opinion,—but if you will forward us a model and the necessary funds, we will make the application.

"J. W P. of Mich."—Back numbers of vol. 4 incomplete. Vol. 3 bound, $2,75. No volumes No. 1 and 2. At the close of vol 4, we can furnish you with it bound for $2,75.

"M. A. H of N. Y."—We know of nothing at present, that will answer your purpose, but will be on the look out, and should we find one that will do, will inform you by letter.

"B. H. of N. H."—An engine and boiler of the power you require, can be furnished you for $475, engine alone $300. The work on Locomotive Engines is 75 cents per No.

"J. P. of N. Y."—Reaction water wheels have been, and can be applied as force pumps. One was exhibited in this city last summer. You could not obtain a patent for the conversion of the two overshot wheels to move together. The wheels which you refer to must have done badly to give only one third of their power. Turbines can be constructed and warranted to give 72 or 73 per cent. If you construct your wheel double, would you not obtain the same result?

"J. O. S. of Pa."—You had better attend to your business as soon as possible. Since you was here, circumstances have developed that may result to your disadvantage unless forestalled.

"W. S. of N. H."—Your beautiful model has been received and will be attended to at as early a period as the circumstances of our business will permit.

"R. J. D. of Mass."—We have constantly on hand the Camera Lucida, price $6. We can forward one on receipt of the money, by Adams & Co's Express.

"E. H. M. of Ill."—Your letter of the 27th July has been received, together with the instructions to Mr. E. They have been forwarded to Boston for attention. We shall forward you a statement as soon as the return is made.

"A. R. S. of N. C."—We cannot discover anything essentially new in your Grass Cutting Machine. Alexander M. Wilson of this city obtained a patent in 1846, for essentially the same combination as yours, therefore we cannot advise you to apply.

"H. R. P. of Pa."—We should like to hear the result of your experiments. We doubt their success, but shall be happy to hear that we are mistaken. We explained the disadvantages of your method in a late number of the Scientific American.

"A. J. P. of Geo."—Your letter of the 1st inst. came safe to hand, with enclosure $17. The new volume of the Scientific American commences in 5 weeks, and we have entered each subscriber's name from the commencement. We hope all our old subscribers are preparing to send several new names beside their own.

"J. P. of N. Y."—A patent was granted in 1846, for a method of preventing the incrustation of boilers. It is very simple, but the inventor contends it is entirely successful.—He throws mahogany or other hard wood saw dust into the boiler, and affirms that it will clean a foul boiler and prevent incrustation.

"J. A. B. of Ohio"—Your letter has been received and the requests attended to. In communicating with this office, you should not omit paying postage. The tax is not so heavy upon you as upon us.

Money received on account of Patent Office business since August 2 :—

A. S. L. of Mo. $20. J. & M. of N. Y. $30. W. S. of N. H. $30. E. B. R. of Vt. $15. S. G. of N. Y. $10.

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Steam Engine 3 to 20 horse power, at from $200 to $1250—good horizontal engines—deliverable here or in Philadelphia.

Steam Boilers for the same, say Bentley's patent, or common cylinder, at lowest prices.

Engine Lathes 5 feet $170 : 7 feet $180 ; 10 feet $200 each, with gear for cutting screws, $45 additional.

Iron Planing Machines, to work by hand $100.—Also Hand Lathes, Drills. &c.

The above Machinery will be warranted. Letters must be post paid. a11 8t

MECHANICS' FAIR.

THE Salem Charitable Mechanic Association announces to the public, that their first Exhibition will be held at Mechanic Hall, in the city of Salem, commencing on Monday, September 24th, and continuing through the week.

We invite all to contribute in every department of industry which can in any way promote the comfort, convenience or improvement of mankind. We respectfully solicit the aid of Mechanics, Manufacturers, and Artists. Let them bring forward the products of the Loom and the Forge. All kinds of Machinery ; every description of Tool and Implement. Articles of Wood, Stone, Metal, Glass, Leather, Wool, Cotton, Silk, Hemp and Flax, specimens of Printing, Statuary, Painting, Daguerreotypes, Engraving and Lithography. Articles of female ingenuity and taste will have a prominent place in the Exhibition.

The Annual Exhibition of the Essex Agricultural Society, and the Essex Institute, will take place in Salem during the week of our Fair We trust that the Manufacturers of Agricultural Implements will bear this in mind, that we may have a good display of articles in this department. The Superintendent of the Fair will be entrusted with the care and management of every article sent for exhibition, and every facility will be given to show its useful purpose, its ingenious contrivance. Care will be taken to preserve them from injury ; trustworthy men will be in attendance day and night ; but all articles will be at the risk of the owners. Each contributor will be entitled to admission. Contributors are particularly and earnestly requested to send forward their goods in season. Articles intended for exhibition, will be received from the 1st to the 22d Sept. A check will be given for each article received, which must be presented when they are returned.

All Goods, Machinery, etc., intended for exhibition will be transported over the Railroads leading into the city, free of expense.

Medals of silver, and Diplomas, will be awarded according to the merit of the articles exhibited.—Strict justice shall be adjudged to every contributor. Impartial men, possessing intelligence, and competent knowledge in each department of art, will be selected as judges ; those only will be appointed who are not competitors for premiums

☞ All communications in relation to the Fair, should be addressed (post paid,) to the Secretary of the Association.

ALBERT G. BROWNE, President,
jy28 ELEAZER M. DALTON, Secretary.

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Any business connected with the Patent office may be done by letter through the Scientific American office with the same facility and certainty as though the inventor applied in person. Our prices too (another important consideration to inventors) are but about half as much as the charges of most agents as the amount of business which we do, and that in connection with the publication of the Scientific American renders to us superior advantage over all other agents.

Having been often complimented by those who have entrusted their business in our care, we here repeat what very many have said. "The best Patent Agency in the United States is at the Scientific American office"

All models, drawings or communications that are sent to the Scientific American office for inspection are deposited from the eyes of the public until the necessary application for securing the invention has been made.

The best of artists are constantly employed to make drawings from models and our corps of specification writers are composed of gentlemen formerly connected with the Patent office at Washington as Examiners.

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THE Subscriber has opened an Agency for the sale of patent rights, machinery, &c. of every description. My object is to enable inventors and manufacturers to realize the fullest advantage from their rights by introducing them into the vast West. All kinds of really good machinery and inventions are wanted, such as stave dressing, barrel making, morticing, sash, iron and wood turning, drilling, pressing and railroad machinery, as well as water wheels, windlasses, steam engines, cotton and woolen mechinery, &c. To sell machines, &c. a model or machine will be needed ; for patent rights a power of attorney would be requisite. My charges will be moderate, and energy used to forward sales. No charge will be made until some benefit is realized. Letters (Post Paid) will receive immediate attention.

References :—Geo. Higgins and Geo. J. Mankin, New York ; S. Lafflin, St. Louis ; Hon. James H, Woodworth, Mayor of Chicago.

JOSEPH E. WARE,
a28 tf 65 Second st., St. Louis, Mo.

NOTICE.

☞ The Second Exhibition of the Maryland Institute for the Mechanic Arts, will be held at Washington Hall, in the City of Baltimore, from Thursday, 27th of September. to 13th October, inclusive. Machines, models, or goods sent to the address of H. Hazelhurst, Corresponding Secretary of the Institute, (expense paid) will be met with immediate attention, and every facility used to exhibit the same to the best advantage. j16 4m

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For the Scientific American.

To make Linen, Cotton and Woolen Cloth Waterproof.

This quality is given to cloth by simply passing it through a hot solution of weak glue and alum. This is what is done by paper makers to make writing paper, the very thing which constitutes the difference between it and blotting paper, only on cloth, the nap, like the fur of a beaver, will preserve the cloth from being wet through, as the rain will not adhere but trickle off as soon as it falls, and moisture will not adhere at all.

To apply it to the cloth make up a weak solution of glue and while it is hot add a piece of alum, about an ounce to two quarts, and then brush it over the surface of the cloth while it is hot, and it is afterwards dried. Cloth in pieces may be run through this solution, and then wrung out of it and dried. By adding a few pieces of soap to the glue, the cloth will feel much softer. Goods in pieces may be run through a tub of weak glue, soap and alum, and squeezed between rollers. This would be a cheap and expeditious mode of preparing it. Woolen goods are prepared by brushing them with the above mixture, first in the inside, then with the grain or nap of the cloth, after which it is dried. It is best to dry this first in the air and then in a stove room, at a low heat, but allow the cloth to remain in for a considerable time to expel the moisture completely. This kind of cloth is far better for the wearer, who may have it, than either oil cloth, or india rubber waterproof. It is well known that oil cloth and india rubber cloth, prevent the gases from escaping, which are thrown off from the body. It very often happens that persons who wear oil cloth coats get very faint and they cannot tell the reason. One reason is, that the air cannot get to their bodies and another is, that the gases cannot escape. This kind of cloth, which every person can make for himself, obviates these two evils, while it is sufficiently waterproof to keep out moisture and rain—it is quite impervious to water, but pervious to the air. Many fishermen know that by boiling their canvass pants, jackets, nets and sails in a pot with oak bark and fish skins, and afterwards drying them, they become waterproof. The composition mentioned above, is of nearly the same nature as the fish glue and oak bark, and consequently the same effects are produced. The composition is stated to be improved by adding about one fourth the quantity of the sulphate of copper to the alum. Cloth made waterproof in this manner, will resist the effects of water even if it is somewhat warm, but it loses its waterproof property, if boiled. Persons who are exposed to the inclemency of the weather will find it to their advantage, as a means of preserving health to prepare their clothes in the way we have described.

Electro Painting.

The principle of this process consists in the production of an electrotype copper cast of the drawing itself. The drawing is to be made on a perfectly smooth unburnished metal plate, the size of the drawing; German silver is well adapted to the purpose This plate is not injured by the process, and can be used repeatedly The pigment employed is thus formed: Two parts of tallow and one of wax are to be well mixed together in a melted state, and blackened with the finest lamp-black; a small portion of this mass must then be rubbed down with turpentine, by the aid of a palette-knife, to the consistency of oil-paint. With this paint, a drawing is to be made with an ordinary paint-brush on the German silver plate. The paint flows readily from the brush, and forms raised touches on the smooth plate; the touches intended to print the darkest being raised the highest.—Various methods of working will suggest themselves to artists. A leather pad is very useful for producing broad flat tints; and good effects may also be obtained by using a leather stump. Even the palette knife may occasionally lend its aid. The artists can judge of the effect of the print from the color of the drawing; the tints of the one corresponding very closely with the tints of the other. The highest lights are obtained either by leaving the German silver plate bare or by wiping out portions of this paint. When the drawing is finished the finest French bronze powder (the same as that used for printing gold letters) must be freely dusted over its surface with a large and soft camel's hair brush, care being afterwards taken to brush away all the bronze which does not adhere to the drawing. A drawing with a metalic surface is thus obtained; on which an electrotype copper plate, a perfect cast of the original drawing and of sufficient thickness to bear the pressure of printing, may be readily deposited. The electrotype plate, when taken off the drawing, must be carefully washed with turpentine to remove any bronze or paint which may adhere to it, the edges must be cut square, and the back of the plate filed smooth—and it is then ready for the printer.

The Use of Oxygen in Reducing Metals.

In reducing metals from the ores, oxygen plays a very important part. Most metals exist as oxides and sulphurets (compounds of sulphur and the metal). To separate the metal from the sulphur, the ore is submitted to what is termed the roasting process; this consists in exposing the ore in powder to a heat sufficient to melt the sulphur, but not to fuse the ore—passing over the ore at the same time a current of air. By this means one part of the oxygen unites with the sulphur to form sulphurous acid, which passes off as a gas—another part unites with the metal to form an oxide. The oxide of the metal thus separated from sulphur is smelted in a furnace at an intense heat. Great care is required in this part of the process, in nicely regulating the quantity of oxygen admitted into the furnace; for it is necessary that so much should be allowed to enter as is sufficient to maintain the high heat required to fuse the metal, but not so much as would suffice for the perfect combustion of the fuel.—To explain the necessity for the above precautions let us suppose three cases;—first, that the air enters in the proper proportion; secondly, that just sufficient air enters for the perfect combustion of the fuel; and, thirdly, the more air enters than is necessary for that purpose. In the first case, the air acts merely as a means of mantaining the high temperature at which the carbon and hydrogen of the fuel have a greater affinity for oxygen than the metal has; thus, that part of the fuel which does not receive from the air entering the furnace, sufficient oxygen for its perfect combustion, will take the oxygen from the metal. The metal thus reduced to its metallic state flows to the bottom of the furnace, and is there withdrawn. But in the second case, as the air entering supplies the fuel with sufficient oxygen for its perfect combustion the oxide of the metal will remain in the furnace undecomposed; simply because its oxygen is not required by the fuel. In the third case, where an excess of air is supposed to enter the furnace, not only is the oxide not reduced, as in the second case; but, moreover, should there be any of the metal already reduced in the furnace, this, on admitting the excess of oxygen, will be again converted into oxide; thus, perhaps, destroying the work of hours. From what has been said above, we may easily perceive the advantages attendant upon the use of what is termed the hot blast in smelting operations. This consists in heating the air, by passing it through pipes laid in a furnace so that it enters the smelting furnace at about 600° Fah. In this manner the temperature of the smelting furnace can be maintained sufficiently high by the admission of much less air than when the air enters cold: thus leaving a much larger portion of the fuel to act on the oxide.

People should be careful not to make rhubarb pies too strong, especially of the buds.—This is a plant that contains a great deal of oxalic acid, and therefore care should be taken to cook it well, and not take too much of it.

Jewellery.

The jewellers are in the habit of performing many operations, in the formation of their delicate and beautiful works, in a manner which is highly deserving of adoption in other branches of manufacture.

In soldering with silver solder, the thinly laminated solder is scraped perfectly clean, and then cut with hand shears into very small square bits, by first dividing the sheet into narrow slips lengthwise, and then cutting them again across. The lump of borax, which is employed as a flux, is rubbed with water, to a thick consistence, upon a flat piece of black slate, scored all over crosswise, to cause it to act upon, or abrade, the lump of borax the more readily. When the pieces to be joined are ready for soldering with a small camels' hair pencil, having a slender ivory handle, flattened at its point, they take up some of the prepared borax, and apply it by means of the pencil, to the parts to be united; they next mix, upon the thumb-nail of the left hand, some of the small square bits, or pellets, of solder, taken up on the hair pencil, with borax, so as to cover them perfectly therewith; these pellets are then carefully applied, by the help of the point of the ivory handle, to the parts to be soldered; and they are then laid upon charcoal ashes contained in a small crucible, and are submitted to the action of the flame of a lamp, urged by the blow pipe; carefully, however, avoiding to heat them too suddenly, or before the borax has ceased bubbling, during the driving off its water of crystalization (which, however, in this mode of employing it, is considerably less than in the ordinary practice,) lest the pellets should be displaced. When the solder has flowed, they very carefully avoid heating the article, more, lest it might melt.

In case they wish to prevent the solder from spreading over surrounding parts, they previously coat them with a layer of Indian ink, applied with another camels' hair pencil.

In the soldering of filagree-work, the process is different. The gold or silver solders are previously reduced, by filing to a state of minute division, and are then put into proper small cylindrical metal boxes, with lids closely fitted to them, and having near their bottoms slender pipes, to allow a little only of the powdered solder to escape at a time, by the action of the finger nail, rubbed upon a serrated piece of metal, affixed upon the pipe.

The articles to be soldered require to be treated according to their nature and forms—If, for instance, a number of similar twisted wire rings are to be united in a flat circular form, they are to be laid upon a piece of charcoal sawn and rubbed flat, and are arranged and kept in the required form, by the application of a thick solution of gum tragacanth, brushed over them and the surface of the charcoal; they are then either laid by, to afford the gum time to dry leisurely; or if haste prevents that, they must be exposed to a very gentle heat. When dry, the thick mixture, of borax before mentioned, must be brushed over them, and the solder be sprinkled upon them in the manner just described: they are then exposed to the flame of the lamp, whilst lying upon the surface of the charcoal;—great care and address, however, is requisite in the management of this very delicate operation, as the least excess of heat would inevitably fuse the whole into a solid mass.

When such an arrangement has been thus formed, and other parts are to be soldered to it, a solder of a more fusible nature must be employed; and the parts are either to be arranged upon charcoal, in the manner above described, or they may be held and supported upon the branched extremities of a congeries of jewellers' twisted fine iron binding-wire, formed as follows:—Several similar lengths of wire are first twisted together, three at a time, leaving a portion of each untwisted: these are again united together at one end, in three or more sets of three each, leaving their exterior ends at liberty, and, lastly, these combined sets all are united by twisting them together. The mass forms an exceedingly convenient support for the infinite variety of different articles of jewellery, which require to be soldered together; and their union is effected, as before described, by the application of the borax and solder, and exposure to the flame of the lamp.

Brown Hard Spirit Varnish.

Put into a bottle three pounds of gum sandarac, two pounds of shellac, and two gallons of spirits of wine, 60 over proof; proceed as directed for the white hard varnish, and agitating it when cold, which requires about four hours time, without any danger of fire; whereas, making spirit varnish by heat is always dangerous. No spirit varnish should be made either by candle light or by fire. When strained add one quart of turpentine varnish, mix it well; next day it will be fit for use.

Gold Lacquer.

Put into a clean four gallon tin one pound of ground turmeric, one and a half ounces of gamboge, three and a half ounces of powdered gum sandarac, three quarters of a pound of shellac, and two gallons of spirits of wine.—When shaken, dissolved, and strained, add one pint of turpentine varnish, well mixed.

Red Spirit Lacquer.

Made exactly as the gold lacquer, with these ingredients,—two gallons of spirits of wine, one pound of dragoon's blood, three pounds of Spanish annatto, three and a quarter pounds of gum sandarac, and two pints of turpentine.

Pale Brass Lacquer.

Two gallons of spirits of wine, one pound of fine pale shellac, three ounces of Cape aloes, cut small; one ounce of gamboge, cut small; no turpentine varnish. Those who make lacquers often require, some paler, some darker, and sometimes inclining to the tint of some particular ingredient; it would be well to have prepared a four-ounce phial of strong solution of each ingredient, thus a lacquer of any tint can be produced at any time.

LITERARY NOTICES.

The Inveterate,

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The Yankee Blade, published in Boston, is one of the most spicy journals in this country. We regret very much that Brother Mathews did not visit our sanctum when here. We should have been pleased to have examined the mechanical qualities of his Yankee Axe.

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